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or accepted, safe and reliable method or device to allow them to communicate an advance warning to approaching vehicles.

While flashing one's headlights could be interpreted as such a warning, it is cumbersome and generally not understood as a signal connoting impending danger. Plus, one would have to repeatedly flash the vehicle headlights for each oncoming vehicle or group of vehicles. In addition, such practice is not advisable at night since either human or mechanical failure to get the lights back on presents a significant danger in itself. An additional problem with head light flashing, is that the driver of the oncoming vehicle has no way of knowing the distance to the upcoming, unexpected road hazard. This may result in the driver relaxing and speeding up just before coming upon the hazard.

Similarly, four-way flashers, which flash signal lights at all four corners of the vehicle simultaneously, indicate that the flashing vehicle is, itself, the hazard. Turn signals indicate turns. Even hand signals are of little value.

In United States Patent No. 5,237,306, issued to Robert Adell on August 17, 1993, a signalling system is described for requesting a driver of a motor vehicle to dim or turn on his vehicle's headlights, but Adell provides no means for warning on-coming drivers of an upcoming road hazard, or for informing them of the relative location of that road hazard.

## SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a cooperative advance warning system for road hazards that will enable drivers to warn oncoming traffic of unusual and unexpected hazards which obviates and mitigates from the disadvantages of the prior methods.

A further object of the present invention is to provide a cooperative advance warning system for road hazards which is easy and convenient to initiate and requires little effort or distraction of the driver and which delivers an advance warning to oncoming drivers that is clear, obvious, unmistakable and which will not be confused with any other signal.

It is a further object of a preferred embodiment of the present invention to provide a cooperative advance warning system for road hazards that can be used to warn oncoming drivers of upcoming, unexpected road hazards and indicate to them whether the hazard is relatively near or far.

According to the present invention, there is provided a cooperative advance warning system for use on a vehicle to warn drivers of oncoming vehicles of an upcoming, unexpected road hazard comprising: a lamp mounted on the vehicle in a location where light emitted by the lamp is visible to drivers of the oncoming vehicles; a switch means connected to the lamp for activating and deactivating the lamp, the switch means mounted to the vehicle in a location that is easily accessible to the driver of the vehicle; and an electronic control means connected to the lamp for controlling the characteristics of the light emitted by the lamp, the electronic control means being capable of causing the lamp to flash on and off at a pre-determined frequency, the

predetermined frequency being variable depending on the length of time the lamp has been activated

According to another aspect of the present invention, there is provided a portable cooperative advance warning system for use in warning drivers of oncoming vehicles of an upcoming, unexpected road hazard comprising: a housing; a lamp mounted to the housing; a switch means mounted on the housing and connected to the lamp for activating and deactivating the lamp; an electronic control means mounted to the housing and connected to the lamp for controlling the characteristics of the light emitted by the lamp, the electronic control means being capable of causing the lamp to flash on and off at a predetermined frequency, the predetermined frequency being variable depending on the distance from the road hazard; and a power supply for providing power to the system.

The present invention advantageously provides a cooperative advance warning system for road hazards which is inexpensive and easy to use. A further advantage is that it can be easily adapted to and installed on any vehicle, new or old. Another advantage is that the present system avoids confusing drivers of oncoming vehicles by providing a warning which is specific to an upcoming, unexpected road hazard. Yet another advantage is that the present system is easy and convenient to initiate, takes little effort and causes little distraction to the driver. Additionally, an important advantage of a preferred embodiment of the present invention is that it can indicate to drivers of oncoming vehicles whether the road hazard is near or far.

Other advantages, objects and features of the present invention will be readily apparent to those skilled in the art from a review of the following

detailed descriptions of a preferred embodiment in conjunction with the accompanying drawings and claims.

## BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the present invention will now be described in greater detail, and will be better understood when read in conjunction with the following drawings, in which:

Figure 1, is a schematic representation of a typical application of the present invention to warn drivers of oncoming vehicles of an upcoming, unexpected road hazard.

Figure 2, is a schematic, partially sectional, plan view of the front portion of a vehicle on which the present invention has been installed.